Docket No.: 49959-013 PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

In re Application of :

Ariel BEN-PORATH, et al. :

Serial No.: 09/111,454 : Group Art Unit: 2623

Filed: July 8, 1998 : Examiner: V. Bali

For: AUTOMATIC DEFECT CLASSIFICATION WITH INVARIANT CORE CLASSES

APPEAL BRIEF

Assistant Commissioner for Patents
Washington, DC 20231

Sir:

This Appeal Brief is submitted in support of the Notice of Appeal filed August 9, 2001.

I. REAL PARTY IN INTEREST

The real Party In Interest is Applied Materials, Inc.

II. RELATED APPEALS AND INTERFERENCES

Appellants are unaware of any related appeals and interferences.

III. STATUS OF CLAIMS

Claims 1-3, 6-20, 23-38 and 40-60 are pending in the application. Claims 9-17, 26-34 and 49-60 have been withdrawn from consideration. It is from the Rejection of claims 1-3, 6-8, 18-20, 23-25, 35-38 and 40-48 that this Appeal is taken.

IV. STATUS OF AMENDMENTS

No Amendments were filed subsequent to the Office Action of February 13, 2001.

V. SUMMARY OF INVENTION

The thrust of the present invention, as depicted in Figs. 1 and 2 of the Application, is directed to an apparatus and computer readable medium for automatically classifying a defect on the surface of a semiconductor wafer into one of, e.g., seven core classes: a missing pattern on the surface, an extra pattern on the surface, a deformed pattern on the surface, a particle on the surface, a particle embedded in the surface, a particle and a deformed pattern on the surface, or craters and microscratches on the surface (see page 7, lines 5-12 of the Application). The defect may also be further classified into a subclass of arbitrarily defined defects defined by the user or preprogrammed in the apparatus (Application page 7, lines 12-14). Embodiments of the present invention include using a scanning electron microscope (SEM), as shown in Fig. 18, capable of collecting electrons emitted from a plurality of angular sectors (Application page 13, line 28 to page 14, line 8) to obtain an image of the defect containing topographical and location information, then analyzing this information to classify the defect (Application page 15, lines 1-

19). As the defects are classified, counts are maintained of the number of occurrences of each type of defect, and an alarm is raised if the defect count in a particular class exceeds a predetermined level (Application page 8, lines 11-13). Thus, defects are accurately and reliably classified and monitored to enable early detection and cure of processing problems (Application page 8, lines 13-15 and 21-29).

VI. ISSUES

A. The Rejections

1. Whether claims 1-3, 6-8, 18-20, 23-25, 35-38, 40-42 and 46-47 are unpatentable under 35 U.S.C. §103(a) over U.S. Patent 5,801,965 (Takagi) in view of U.S. Patent 5,814,829 (Broude).

2. Whether claims 43-45 are unpatentable under 35 U.S.C. § 103(a) over Takagi and Broude and further in view of U.S. Patent 5,591,971 (Shahar).

3. Whether claim 48 is unpatentable under 35 U.S.C. § 103(a) over Takagi and Broude and further in view of U.S. Patent 5,960,106 (Tsuchiya).

VII. GROUPING OF CLAIMS

The appealed claims do not all stand or fall together. The appealed claims 1-3, 6-8, 18-20, 23-25, 35-38 and 40-45 stand or fall together. The appealed claims 46-48 stand or fall together.

VIII. THE ARGUMENT

A. The Applied Prior Art

1. Tagaki

The Tagaki reference relates to a semiconductor device defect classification system that extracts feature data of the defects based on their classification, feeds back this information to improve the automatic inspection process, uses this information to determine the cause of the defects, and controls the manufacturing machinery accordingly, to avoid further defects and improve yield. See Takagi at, for example, col. 5, line 27 to col. 6, line 9 with reference to Fig. 1. Absent is the claimed teaching of counting the number of defects in each class and generating an alarm when the number of defects in a particular class is greater than a threshold number.

2. Broude

Broude relates to a photolithographic mask (or "reticle") inspection system wherein when a threshold number of reticle defects of a particular size is exceeded, the inspection is interrupted and the operator informed, so that time is not wasted continuing inspection of a low-quality reticle (see, e.g., col. 5, lines 47-67). Thus, Broude's system provides a "go-no go" test for

efficiently discovering and rejecting reticles that do not meet predetermined quality standards. Absent is the claimed teaching of classifying defects as being in one of a number of core classes.

3. Shahar

Shahar relates to a scanning electron microscope having a plurality of detectors and a monitor to display images produced by the detectors. Absent is the claimed teaching of classifying defects as being in one of a number of core classes, counting the number of defects in each class and generating an alarm when the number of defects in a particular class is greater than a threshold number.

4. Tsuchiya

Tsuchiya relates to a method of inspecting a pattern formed on a transparent glass mask used in fabricating semiconductor devices. Absent are the claimed teachings of imaging the surface with an SEM and an optical imager, and classifying defects as being in one of a number of core classes.

B. The Issues Addressed

The Examiner Did Not Establish a *Prima Facie* Case of Obviousness Under 35 U.S.C. § 103

The initial burden of establishing a ***prima facie*** basis to deny patentability to a claimed invention under any statutory provision always rests upon the Examiner. ***In re Mayne***, 104 F.3d

1339, 41 USPQ2d 1451 (Fed.Cir. 1997); ***In re Deuel***, 51 F.3d 1552, 34 USPQ2d 1210 (Fed.Cir. 1995); ***In re Bell***, 991 F.2d 781, 26 USPQ2d 1529 (Fed.Cir. 1993; ***In re Oetiker***, 977 F.2d 1443, 24 USPQ2d 1443 (Fed.Cir. 1992). In rejecting a claim under 35 U.S.C. § 103, the Examiner is required to provide a factual basis to support the obviousness conclusion. ***In re Warner***, 379 F.2d 1011, 154 USPQ 173 (CCPA 1967); ***In re Lunsford***, 357 F.2d 385, 148 USPQ 721 (CCPA 1966); ***In re Freed***, 425 F.2d 785, 165 USPQ 570 (CCPA 1970). The Examiner is required to show that all the claim limitations are taught or suggested by the references. ***In re Royka***, 490 F.2d 981, 180 USPQ 580 (CCPA 1974); ***In re Wilson***, 424 F.2d 1382, 165 USPQ 494 (CCPA 1970). In addition, the Examiner is obliged to explain how and why one having ordinary skill in the art would have been realistically motivated to combine the applied references to arrive at the claimed invention. ***In re Ochiai***, 71 F.3d 565, 37 USPQ2d 1127 (Fed.Cir 1991); ***In re Deuel***, ***supra***. In establishing the requisite motivation, it has been consistently held that the Examiner must show an objective teaching in the art that would have motivated one skilled in the art to modify the cited reference to yield the claimed invention. ***In re Jones***, 958 F.2d 347, 21 USPQ2d 1941 (Fed.Cir. 1992); ***In re Mills***, 16 USPQ2d 1430 (Fed.Cir. 1990); ***In re Fine***, 837 F.2d 1071, 5 USPQ2d 1596 (Fed.Cir. 1988).

1. The Examiner has not shown an objective teaching in the art that would have motivated a skilled artisan to combine the cited references to yield the invention of claims 1-3, 6-8, 18-20, 23-25, 35-38 and 40-45. Therefore, the Examiner has not established a ***prima facie*** case of obviousness.

Regarding the obviousness rejection of independent claims 1, 18, and 37, it is contended

in the Office Action that it would have been obvious to combine Takagi's defect inspection and classification technique with Broude's teaching of inspecting for defects, mapping and counting the defects and generating a signal when a threshold number of defects of a particular size and/or at a particular location are found, to thereby yield the invention of claims 1, 18 and 37.

Appellants disagree. The Examiner has not provided an objective teaching in either reference that would have motivated a skilled artisan to incorporate Broude's teaching into Takagi's system, because none exists. The purpose of Takagi's semiconductor device defect classification system is to extract feature data of the defects based on their classification, feed back this information to improve the automatic inspection process, use this information to determine the cause of the defects, and control the manufacturing machinery accordingly, to avoid further defects and improve yield. These functions are explained in Takagi at, for example, col. 5, line 27 to col. 6, line 9 with reference to Fig. 1.

Broude relates to a photolithographic mask (or "reticle") inspection system wherein when a threshold number of reticle defects of a particular size at a particular location is exceeded, the inspection is interrupted and the operator informed, so that time is not wasted continuing inspection of a low-quality reticle (see, e.g., col. 5, lines 47-67). In other words, Broude's system is for efficiently discovering and rejecting reticles that do not meet predetermined quality standards.

Tagaki's purposes would not be furthered by Broude's defect counting and signaling technique. Broude's approach to inspection is much different (and more primitive) than Tagaki's, and is used in a different context. Broude's technique is for inspecting *completed* masks *before*

they are used in production to weed out low-quality masks (i.e., a "go -no go" test). In contrast, Tagaki improves product yield *during production* by using defect feature data from the inspection process to improve its inspection process, to determine the cause of the defects, and to adjust the operating parameters of its manufacturing machinery to prevent further defects. None of these functions are performed by Broude's inspection methodology, and none of Tagaki's goals would be served by modifying it with Broude's defect counting and display/inspection shutdown technique. Moreover, there is no objective teaching in Tagaki's yield improvement methodology relating to Broude's functions of defect counting resulting in inspection shutdown, or vice versa. Therefore, a skilled artisan would not have been motivated to add Broude's defect counting and display/inspection shutdown technique to Tagaki's inspection system to yield the invention of independent claims 1, 18 and 37.

It is contended by the Examiner that a skilled artisan would have been motivated to incorporate Broude's counting and display/shutdown features into Tagaki's inspection system to "provide an apparatus that will either complete the process or cease the process". However, there is no support in either reference for this contention. As discussed above, Broude teaches counting defects, displaying the results and shutting down the inspection process to reject a low-quality reticle, not to improve the yield of the reticle manufacturing process (or of any other manufacturing process). Broude's process is not used for in-process inspection, where yield is an issue, but rather is used after completion of a reticle and before production using the reticle begins.

Moreover, stopping or slowing down the process to improve yield is not taught or even

suggested as a desirable action in Tagaki. Rather, Tagaki arguably *teaches away* from such action by teaching the use of its inspection results to determine the causes of defects and to adjust the production parameters accordingly, thereby improving yield. Furthermore, Takagi teaches selecting and segregating defective products for repair by an automatic or manual "repair unit" (see col. 6, lines 39-59). Takagi's production line does not need to be slowed or stopped, as suggested in the Office Action, since Tagaki teaches an alternative technique for dealing with defective products. Such action would defeat the purpose of Tagaki's automated inspection/repair/process control system. It is well-established that if a proposed modification would render the prior art invention being modified unsatisfactory for its intended purpose, then there is no suggestion or motivation to make the proposed modification. ***In re Gordon***, 733 F.2d 900 (Fed.Cir. 1984); ***In re Ratti***, 270 F.2d 810 (CCPA 1959)(If a proposed modification or combination would change the principle of operation of the prior art invention being modified, then the teachings of the references are not sufficient to render the claims *prima facie* obvious); MPEP § 2143.01.

The Examiner is using improper hindsight here, using the Applicants' disclosure (of their motivation for making the invention) against them. There is no objective teaching in the art offered in support of the Office Actions' stated motivation to combine the references. Thus, the statement in the Office Action offered to show motivation to combine Tagaki and Broude to yield the claimed invention is speculative, and cannot support a rejection under 35 U.S.C. § 103.

Consequently, independent claims 1, 18 and 37 are patentable, as are claims 2, 3, 6, 7, 8, 18-20, 23-25, 35, 36, 38 and 40-42, which depend from claims 1, 18 and 37.

Regarding the obviousness rejection of dependent claims 43-45 based on Tagaki, Broude and Shahar, the Shahar reference does not furnish the necessary motivation to combine Tagaki and Broude to yield the apparatus of independent claim 37, from which claims 43-45 depend.

Consequently, claims 43-45 are patentable.

2. The Examiner has not shown that all the limitations of claims 46-48 are taught or suggested by the cited references. Therefore, the Examiner has not established a ***prima facie*** case of obviousness.

Regarding the rejection of independent claim 46 based on Tagaki and Broude, neither cited reference teaches or suggests the important recited step of imaging with both an SEM and an optical imager. Both references teach optical imaging only, and do not mention SEM imaging or the claimed combination of SEM and optical imaging. See Tagaki col. 15, line 15 et seq. and Fig. 19; Broude col. 6, line 29 to col. 8, line 32. Since neither reference teaches or suggests the above-discussed SEM/optical imaging step of claim 46, any combination of Tagaki and Broude, however made, would still be missing this step, and it would not have been obvious to add this step to any Tagaki/Broude combination.

Consequently, claim 46 is patentable, as is claim 47, which depends from claim 46.

Regarding the obviousness rejection of dependent claim 48 based on Tagaki, Broude and Tsuchiya, the Tsuchiya reference does not furnish a teaching or suggestion of the important step of imaging with both an SEM and an optical imager of independent claim 46, from which claim 48 depends, missing from Tagaki and Broude. Thus, any combination of Tagaki, Broude and Tsuchiya, however made, would still be missing this step, and it would not have been obvious to

add this step to any Tagaki/Broude/Tsuchiya combination.

Consequently, claim 48 is patentable.

IX. SUMMARY

The Examiner's rejections of claims 1-3, 6-8, 18-20, 23-25, 35-38 and 40-45 under 35 U.S.C. § 103 do not withstand scrutiny, in that the Examiner has not established the requisite motivational element for combining the cited references. There is no objective teaching in the art offered in support of the Office Actions' stated motivation to combine the references. Moreover, the references teach goals that are not compatible. Therefore, one skilled in the art would not have been motivated to include the technique of the secondary reference in that of the primary reference as suggested by the Examiner to yield the claimed invention. Furthermore, the Examiner's rejection of claims 46-48 under 35 U.S.C. § 103 does not withstand scrutiny, because the Examiner has not shown that all the claimed limitations are taught or suggested by the cited references. Appellants, therefore, respectfully submit that the Examiner has not established a prima facie basis to deny patentability to the claimed invention under 35 USC § 103.

X. PRAYER FOR RELIEF

In view of the foregoing arguments, Appellants respectfully solicit the Honorable Board to reverse the Examiner's rejection of claims 1-3, 6-8, 18-20, 23-25, 35-38 and 40-48 under 35 USC § 103.

To the extent necessary, a petition for an extension of time under 37 CFR 1.136 is hereby made. Please charge any shortage in fees due in connection with the filing of this paper, including extension of time fees, to Deposit Account 12-2237 and please credit any excess fees to such deposit account.

Respectfully submitted,

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APPENDIX 1

1. A method of automatically classifying defects on the surface of an article, which method comprises at least:

imaging the surface;

classifing each of the defects as being in one of a predetermined number of invariant core classes of defects;

determining a total number of defects in each of the core classes; and

generating an alarm signal when the total number of defects in a specific one of the core classes is equal to or greater than a first predetermined number.

2. The method according to claim 1, wherein the core classes of defects comprise a missing pattern on the surface, an extra pattern on the surface, a particle on the surface, a particle embedded in the surface, and microscratches on the surface.

3. The method according to claim 1, comprising imaging the surface with a scanning electron microscope.

6. The method according to claim 1, comprising further classifying the defect as being in one of an arbitrary number of variant subclasses.

7. The method according to claim 6, comprising

classifying a plurality of defects on the surface of the article; and

determining a total number of defects in each of the subclasses.

8. The method according to claim 7, comprising generating an alarm signal when the total number of defects in a specific one of the subclasses is about equal to or greater than a second predetermined number.

18. A computer-readable medium bearing instructions for automatically classifying defects on the surface of an article, said instructions, when executed, being arranged to cause one or more processors to perform the steps of:

imaging the surface;

classifying each of the defects as being in one of a predetermined number of invariant core classes of defects;

determining a total number of defects in each of the core classes; and

generating an alarm signal when the total number of defects in a specific one of the core classes is about equal to or greater than a first predetermined number

19. The computer-readable medium according to claim 18, wherein the core classes of defects comprise a missing pattern on the surface, an extra pattern on the surface, and a particle on the surface.

20. The computer-readable medium according to claim 18, wherein the instructions, when executed, are arranged to cause the one or more processors to perform the step of imaging the surface with a scanning electron microscope.

23. The computer-readable medium according to claim 18, wherein the instructions, when executed, are arranged to cause the one or more processors to perform the step of classifying the defect as being in one of an arbitrary number of subclasses of arbitrarily defined defects.

24. The computer-readable medium according to claim 23, wherein the instructions, when executed, are arranged to cause the one or more processors to perform the steps of:

classifying a plurality of defects on the surface of the article; and

determining a total number of defects in each of the subclasses.

25. The computer-readable medium according to claim 24, wherein the instructions, when executed, are arranged to cause the one or more processors to perform the step of generating an alarm signal when the total number of defects in a specific one of the subclasses is about equal to or greater than a second predetermined number.

35. The computer-readable medium according to claim 18, wherein the instructions, when executed, are arranged to cause the one or more processors to perform the step of imaging by acquiring a plurality of images using a plurality of spaced-apart detectors.

36. The computer-readable medium according to claim 35, wherein the instructions, when executed, are arranged to cause the one or more processors to acquire the images by causing the detectors to collect electrons.

37. An apparatus for classifying defects on the surface of an article, comprising:

an imager to produce an image of the defect and a reference image;

a storage device to store the defect image and the reference image;

a comparator to compare the defect image and the reference image;

a processor to classify the defect as being in one of a predetermined number of invariant core classes of defects;

a first counter for counting the number of defects in each of the core classes; and

a first signal generator for generating an alarm signal when the total number of defects in a specific one of the core classes is about equal to or greater than a first predetermined number.

38. The apparatus of claim 37, wherein the imager is a scanning electron microscope (SEM).

40. The apparatus of claims 37, wherein the storage device is a digital storage device.

41. The apparatus of claim 37, further comprising of processor for classifying the defect as being in one of arbitrary number of subclasses of arbitrarily defined defects.

42. The apparatus of claim 41, further comprising a second counter for counting the number of defects in each of the subclasses and a second signal generator for generating an alarm signal when the total number of defects in a specific one of the subclasses is about equal to or greater than a second predetermined number.

43. The apparatus of claim 38, further comprising a plurality of spaced-apart detectors and a monitor to display images produced by the plurality of detectors.

44. The apparatus of claim 38, wherein the SEM comprises an SEM column, wherein a first one of the plurality of detectors is disposed inside the SEM column and a second one of the plurality of detectors is disposed outside the SEM column.

45. The apparatus of claim 44, further comprising a first monitor for displaying an image produced by the first detector, and a second monitor for displaying an image produced by the second detector.

46. A method of automatically classifying a defect on the surface of an article; which method comprises:

imaging the surface with a scanning electron microscope and an optical imager; and

classifying the defect as being in one of a predetermined number of classes of defects.

47. The method according to claim 46, wherein the classes of defects include the color of the surface.

48. The method according to claim 46, wherein the surface is glass, and the classes of defects include a particle embedded in the surface and substantially not protruding from the surface.

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BCS

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
09/111,454	07/08/98	BEN-PORATH	A 49959-U13

EXAMINER	
BALI, V	
ART UNIT	**PAPER NUMBER**
2629	13

DATE MAILED: 02/13/01

WM31/0213

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FEB 15 2001
McDermott, Will & Emery

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

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Technology Center 2600

Office Action Summary	Application No. 09/111,454	Applicant(s) Ben-Porath et al
	Examiner Vikkram Bali	Group Art Unit 2623

☒ Responsive to communication(s) filed on *Dec 28, 2000*.

☒ This action is **FINAL**.

☐ Since this application is in condition for allowance except for formal matters, **prosecution as to the merits is closed** in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

A shortened statutory period for response to this action is set to expire *3* month(s), or thirty days, whichever is longer, from the mailing date of this communication. Failure to respond within the period for response will cause the application to become abandoned. (35 U.S.C. § 133). Extensions of time may be obtained under the provisions of 37 CFR 1.136(a).

Disposition of Claims

☒ Claim(s) *1-3, 6-8, 18-20, 23-25, 35-38, and 40-48* is/are pending in the application.

Of the above, claim(s) _____ is/are withdrawn from consideration.

☐ Claim(s) _____ is/are allowed.

☒ Claim(s) *1-3, 6-8, 18-20, 23-25, 35-38, and 40-48* is/are rejected.

☐ Claim(s) _____ is/are objected to.

☐ Claims _____ are subject to restriction or election requirement.

Application Papers

☐ See the attached Notice of Draftsperson's Patent Drawing Review, PTO-948.

☐ The drawing(s) filed on _____ is/are objected to by the Examiner.

☐ The proposed drawing correction, filed on _____ is ☐approved ☐disapproved.

☐ The specification is objected to by the Examiner.

☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119

☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).

☐ All ☐ Some* ☐ None of the CERTIFIED copies of the priority documents have been

☐ received.

☐ received in Application No. (Series Code/Serial Number) _____.

☐ received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

*Certified copies not received: _____.

☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

Attachment(s)

☐ Notice of References Cited, PTO-892

☐ Information Disclosure Statement(s), PTO-1449, Paper No(s). _____

☐ Interview Summary, PTO-413

☐ Notice of Draftsperson's Patent Drawing Review, PTO-948

☐ Notice of Informal Patent Application, PTO-152

--- SEE OFFICE ACTION ON THE FOLLOWING PAGES ---

DETAILED ACTION

1. This is in response to applicant's amendments received on 12/28/00, all requested changes to claims have been entered. And, the rejections under 35 USC 102 are withdrawn.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103© and potential 35 U.S.C. 102(f) or (g) prior art under 35 U.S.C. 103(a).

3. Claims 1-3, 6-8, 18-20, 23-25, 35-38, 40-42 and 46-47 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takagi et al. (US 5801965) in view of Broude et al. (US 5814829).

With respect to claims 1-3, 6-8, 18-20, 23-25, 35-38, 40-42 and 46-47 the rejections are respectfully maintained and incorporated by references as set forth in the prior office action (paper # 9). For claims 1, 18, and 37 see the rejection for the claims 4-5, 21-22 and 39, because the limitations of claims 4-5, 21-22 and 39 are incorporated into claims 1, 18 and 37.

4. Claims 43-45 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takagi et al. (US 5801965) and Broude et al. (US 5814829) as applied to claim 38 above, and further in view of Shahar et al (US 5591971).

With respect to claims 43-45 the rejections are respectfully maintained and incorporated by references as set forth in the prior office action (paper # 9).

5. Claim 48 is rejected under 35 U.S.C. 103(a) as being unpatentable over Takagi et al. (US 5801965) and Broude et al. (US 5814829) as applied to claim 46 above, and further in view of Tsuchiya et al (US 5960106).

With respect to claim 48 the rejections are respectfully maintained and incorporated by references as set forth in the prior office action (paper # 9).

Remarks

6. In the amendment filed at 12/28/2000, applicant argued that:

In response to applicant's argument that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 19880; *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, .

In this specific case, Takagi's method and system for manufacturing semiconductor devices and method and system for inspecting semiconductor devices, inspects the wafer and classifies the defects, and Broude's teachings of having a counter for counting the defects and annunciating a signal if the counter goes over a predetermined threshold. It will be obvious for one in the ordinary skilled in the art to combine the two to form a inspecting system that will have a classification counter and does annunciates if counter exceeds the predetermined threshold, this will provide an apparatus that will either complete the process or cease the process (see col. 2, lines 10-15).

Conclusion

7. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, THIS ACTION IS MADE FINAL. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Vikkram Bali whose telephone number is (703) 305-4510.

Any inquiry of a general nature or relating to the status of this application should be directed to the Group receptionist whose telephone number is (703) 305-4700.

Any response to this action should be mailed to:

Commissioner of Patents and Trademarks

Washington, DC 20231

or faxed to:

(703) 306-5406 (for formal communications intended for entry)

(703) 306-5406 (for informal or draft communications, such as proposed amendments to be discussed at an interview, please label "PROPOSED " or "DRAFT")

or hand-carried to:

Crystal Park Two,

2121 Crystal Drive,

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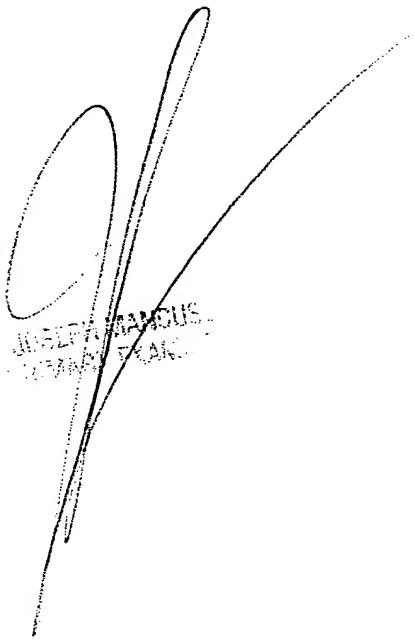
Sixth Floor (Receptionist).

vb

February 7, 2001



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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
09/111,454	07/08/98	BEN-PORAT	A 4995-013

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ART UNIT	PAPER NUMBER
2823	18

DATE MAILED: 08/24/01

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APB. 10-9-01

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Advisory Action

Application No.	Applicant(s)
09/111,454	Ben-Porath et al
Examiner	**Art Unit**
Vikkram Bali	2623

– The MAILING DATE of this communication appears on the cover sheet with the correspondence address –

THE REPLY FILED *Aug 9, 2001* FAILS TO PLACE THIS APPLICATION IN CONDITION FOR ALLOWANCE. Therefore, further action by the applicant is required to avoid the abandonment of this application. A proper reply to a final rejection under 37 CFR 1.113 may only be either: (1) a timely filed amendment which places the application in condition for allowance; (2) a timely filed Notice of Appeal (with appeal fee); or (3) a timely filed Request for Continued Examination (RCE) in compliance with 37 CFR 1.114.

THE PERIOD FOR REPLY [check only a) or b)]

a) ☐ The period for reply expires _____ months from the mailing date of the final rejection.

b) ☐ In view of the early submission of the proposed reply (within two months as set forth in MPEP § 706.07 (f)), the period for reply expires on the mailing date of this Advisory Action, OR continues to run from the mailing date of the final rejection, whichever is later. In no event, however, will the statutory period for the reply expire later than SIX MONTHS from the mailing date of the final rejection.

Extensions of time may be obtained under 37 CFR 1.136(a). The date on which the petition under 37 CFR 1.136(a) and the appropriate extension fee have been filed is the date for purposes of determining the period of extension and the corresponding amount of the fee. The appropriate extension fee under 37 CFR 1.17(a) is calculated from: (1) the expiration date of the shortened statutory period for reply originally set in the final Office action; or (2) as set forth in (b) above, if checked. Any reply received by the Office later than three months after the mailing date of the final rejection, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

1. ☒ A Notice of Appeal was filed on *Aug 9, 2001*. Appellant's Brief must be filed within the period set forth in 37 CFR 1.192(a), or any extension thereof (37 CFR 1.191(d)), to avoid dismissal of the appeal.

2. ☐ The proposed amendment(s) will be entered upon the timely submission of a Notice of Appeal and Appeal Brief with requisite fees.

3. ☐ The proposed amendment(s) will not be entered because:

   (a) ☐ they raise new issues that would require further consideration and/or search. (See NOTE below);

   (b) ☐ they raise the issue of new matter. (See NOTE below);

   (c) ☐ they are not deemed to place the application in better form for appeal by materially reducing or simplifying the issues for appeal; and/or

   (d) ☐ they present additional claims without cancelling a corresponding number of finally rejected claims.

   NOTE: _____

4. ☐ Applicant's reply has overcome the following rejection(s):

5. ☐ Newly proposed or amended claim(s) _____ would be allowable if submitted in a separate, timely filed amendment cancelling the non-allowable claim(s).

6. ☒ The a) ☒ affidavit, b) ☐ exhibit, or c) ☐ request for reconsideration has been considered but does NOT place the application in condition for allowance because:
   Claims are still deemed unpatentable over the art of record and applicant's arguments have not been persuasive.

7. ☐ The affidavit or exhibit will NOT be considered because it is not directed SOLELY to issues which were newly raised by the Examiner in the final rejection.

8. ☒ For purposes of Appeal, the status of the claim(s) is as follows (see attached written explanation, if any):

   Claim(s) allowed: _____

   Claim(s) objected to: _____

   Claim(s) rejected: *1-3, 6-8, 18-20, 23-25, 35-38, and 40-48*

9. ☐ The proposed drawing correction filed on _____ a) ☐ has b) ☐ has not been approved by the Examiner.

10. ☐ Note the attached Information Disclosure Statement(s) (PTO-1449) Paper No(s). _____.

11. ☐ Other:

Attachment for PTO-948 (Rev. 03/01, or earlier)
6/18/01

The below text replaces the pre-printed text under the heading, "Information on How to Effect Drawing Changes," on the back of the PTO-948 (Rev. 03/01, or earlier) form.

INFORMATION ON HOW TO EFFECT DRAWING CHANGES

1. Correction of Informalities -- 37 CFR 1.85

New corrected drawings must be filed with the changes incorporated therein Identifying indicia, if provided, should include the title of the invention, inventor's name, and application number, or docket number (if any) if an application number has not been assigned to the application If this information is provided, it must be placed on the front of each sheet and centered within the top margin. If corrected drawings are required in a Notice of Allowability (PTOL-37), the new drawings **MUST** be filed within the **THREE MONTH** shortened statutory period set for reply in the Notice of Allowability. Extensions of time may NOT be obtained under the provisions of 37 CFR 1.136(a) or (b) for filing the corrected drawings after the mailing of a Notice of Allowability. The drawings should be filed as a separate paper with a transmittal letter addressed to the Official Draftsperson.

2. Corrections other than Informalities Noted by Draftsperson on form PTO-948.

All changes to the drawings, other than informalities noted by the Draftsperson, **MUST** be made in the same manner as above except that, normally, a highlighted (preferably red ink) sketch of the changes to be incorporated into the new drawings **MUST** be approved by the examiner before the application will be allowed. No changes will be permitted to be made, other than correction of informalities, unless the examiner has approved the proposed changes.

Timing of Corrections

Applicant is required to submit the drawing corrections within the time period set in the attached Office communication. See 37 CFR 1.85(a).

Failure to take corrective action within the set period will result in ABANDONMENT of the application.